BALANCING OBJECT

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] None.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] None.

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0003] The invention relates generally to balance improving devices, and more specifically, to balancing objects that may be oriented in various arrangements to provide balance training.

2. Discussion of the Related Art

[0004] The maintenance of physical fitness is of ever-increasing importance in our modern society. Scientific studies have shown that achieving good physical condition through exercise provides a person with increased energy and strength while reducing stress. One important component of physical condition is acquiring strong balance. Many muscle groups of the body are involved in maintaining a person's balance, especially when their body is in motion or in an otherwise relatively unbalanced state (e.g., standing on one foot). By practicing certain balance improving techniques, targeted muscle groups may be strengthened, improving a person's ability to control their body when engaging in a wide variety of activities, such as playing sports, exercising, lifting objects, etc. Therefore, improving balance – especially through

activities that require motion – indirectly increases a person's flexibility and improves their proprioception

[0005] A common scheme for practicing balance improvement is to step from one raised "balancing" object to another, or alternately between a raised object and a stable, broad flat surface. This method involves many major muscle groups, including those in a person's legs, abdomen and back, and as such, is highly beneficial in developing strong balance. Optimization of these types of balance improvement techniques may be achieved through designing raised objects that are structurally stable and can accommodate a user standing on the object, but with a shape that challenges the user to maintain their stance in equilibrium.

BRIEF SUMMARY OF THE INVENTION

[0006] One or more balancing objects having an arcuate roof are presented for improving a user's balance and proprioception. A user may step from the arcuate roof of one object to the arcuate roof of another object, or may stabilize their position by standing on one or two of the balancing objects, thereby training and developing targeted muscle groups. The balancing objects generally take the form of a shell with the arcuate roof on which the user stands spanning the length of the shell, and sidewalls formed along the sides of the arcuate roof to maintain the structural integrity of the object. The combination of the arcuate roof and sidewalls define an enclosed space for the object into which another balancing object may be inserted so that a number of balancing objects may be stacked together.

[0007] In one aspect, the sidewalls are configured to maintain the structural integrity of the balancing object. The sidewalls extends downwardly from side edges of the arcuate roof and have a concave profile extending laterally inward towards the enclosed area. The shape of the

sidewalls reduce the tendency of the arcuate roof and the sidewalls to collapse or fold downward when a person applies their weight to the roof of the balancing object.

[0008] In another aspect, a frictional rubber or plastic overmold is disposed on a top surface of the arcuate roof. The frictional overmold has a surface that provide for betting gripping of a user's footwear when stepping onto the balancing object; the frictional surface may further have a series of raised ridges providing improved traction with the footwear. The overmold may also be extended to wrap around opposed footings of the arcuate roof such that bottom edges of the sidewalls are raised above a horizontal surface onto which the object is placed. In this way, the friction provided by the overmold contacting the horizontal surface will inhibit the balancing object from sliding across the horizontal surface when a user steps onto the object.

[0009] In another aspect, one or more bracing ribs are formed onto a bottom surface of the arcuate roof to provide structural reinforcement to prevent downward collapsing of the roof when loaded. Each bracing rib extends longitudinally along the arcuate roof bottom surface and may extend substantially from one base end of the roof to the opposed base end.

[0010] In another aspect, each sidewall of the balancing object has a emboss formed on an inner surface thereof, and a corresponding deboss formed on an outer surface thereof and configured to matingly receive the emboss of another balancing object to secure the two balancing objects together when one object is placed within the enclosed space of the other object.

[0011] Thus, the balancing object of the present invention provides a stable structure while challenging the user with an arcuate roof for developing varying degrees of balance. A user standing with their foot generally centered on and aligned longitudinally with the arcuate

roof can engage in flexion and extension with their foot to improve more degrees of their balance. Two or more balancing objects may also be positioned relative to each other at any orientation (e.g., forward and back, laterally, diagonally) on a generally horizontal surface and the user may repeatedly step from one object to the other to develop dynamic balance and proprioception.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING

[0012] FIG. 1 is a top perspective view of the balancing object in accordance with one embodiment of the invention;

[0013] FIG. 2 is a side elevational view of the balancing object;

[0014] FIG. 3 is a top plan view of the balancing object;

[0015] FIG. 4 is a bottom perspective view of the balancing object;

[0016] FIG. 5 is a cross-sectional view of the balancing object taken along line 5-5 showing the reinforcing ribs and the emboss and deboss;

[0017] FIG. 6 is a side elevational view showing two balancing objects stacked together for storage or carrying;

[0018] FIG. 7 is a cross-sectional view of the balancing object taken along line 7-7 showing the emboss of one balancing object mating with the deboss of another balancing object to secure the balancing objects together;

[0019] FIG. 8 is an illustrative side view of two balancing objects and a user stepping between the balancing objects; and

[0020] FIG. 9 is an illustrative top view of an exemplary layout for a series of balancing objects.

DETAILED DESCRIPTION OF THE INVENTION

[0021] One balancing object of one embodiment of the present invention is shown generally at 10 in Figs. 1-5. The balancing object 10 is ideally positioned on a flat, generally horizontal surface 100 for use, as will be more fully described herein. Shaping the balancing object 10 into the configuration of a shell 12 is a longitudinally-extending arcuate roof 14 peaking at an apex 15 and a pair of sidewalls 16 extending downwardly from opposed lateral side regions 18 of the roof 14. The balancing object 10 is designed to be laterally symmetrical about longitudinal centerline C_L. Also, the shell 12 may be molded into a single unitary body and formed of a variety of composites, such as plastics.

[0022] In one preferred arrangement, a frictional overmold 20 made of a rubber or plastic material, or combination thereof, is affixed to the shell 12 and enshrouds the arcuate roof 14 with a shape that is generally the same as the shape of the underlying roof 14. The overmold 20 covers essentially the entire upper surface 22 of the arcuate roof 14, as shown in Fig. 5, as well as opposed footings 24 of the roof 14, thereby serving two functions. First, the overmold 20 covering the roof upper surface 22 provides a frictional surface 26 to engage with footwear worn by a user to aid in the prevention of slippage off of the balancing object 10. Secondly, by having the overmold 20 wrap around the footings 24 of the arcuate roof 14, the overmold 20 is the only part of the balancing object 10 that actually touches the horizontal surface 100 when unloaded. In fact, base edges 28 of the sidewalls 16 do not touch the horizontal surface 100 until a sufficient load is reach that will cause the arcuate roof 14 and/or the sidewall 16 itself to deflect downward a distance such that the sidewall base edges 28 move the distance of gap G, as shown in Fig. 2. By having only the overmold 20 contact the horizontal surface 100 under most loading conditions, the balancing object 10 will resist sliding thereacross when a user steps onto the

object 10. The overmold 20 may further have a series of raised ridges 30 that provide improved traction with a user's footwear.

[0023] The opposed footings 24 of the arcuate roof 14 enshrouded by the frictional overmold 20 generally have a convex profile extending away from one another or longitudinally outward along Centerline C_L. Conversely, the sidewalls 16 generally have a concave profile extending laterally towards one another. This configuration for the opposed footings 24 and the sidewalls 16 provides the balancing object with superior strength as compared to a traditional spherical dome design in that the sidewalls 16 and arcuate roof 14 are more resistant to folding or collapsing downward when loaded by a user standing longitudinally on the roof 14.

[0024] In an alternative arrangement, the opposed footings 24 may have a concave profile and the sidewalls 16 may have a convex profile while still achieving the strength advantages over a traditional spherical dome design. Furthermore, one of the opposed footings 24 or the sidewalls 16 may alternatively have a straight-line profile. However, at least one of the arcuate roof footings 24 and the sidewall base edges 28 should not have a convex profile, so that a base perimeter edge 32 of the balancing object 10 is formed into a shape that is non-circular and preferably non-elliptical.

[0025] A pair of bracing ribs 34 are shown in Figs. 4 and 5 extending generally longitudinally along a lower surface 36 of the arcuate roof 14 within an enclosed space 38 thereof. The bracing ribs 34 are formed near the lateral side regions 18 of the arcuate roof 14 and adjacent to the sidewalls 16 such that the ribs 34 have an arcuate shape in the same fashion as the roof 14 while also having a concave profile similar to the sidewalls 16. Also, the bracing ribs 34 preferably extend from proximal one roof base edge 24 to proximal the opposed roof base edge 24. In this way, the bracing ribs 34 provide strength and rigidity to the shell 12 to prevent

the arcuate roof 14 from collapsing downwardly or the sidewalls 16 and roof 14 from buckling laterally and downwardly at the lateral side regions 18. If desired for further strengthening, additional bracing ribs may be disposed on the arcuate roof lower surface 36 between the ribs 34.

[0026] Figs. 5-7 show features for removably attaching multiple balancing objects 10 together. Debosses 40 are formed into outer surfaces 42 of the sidewalls 16 and corresponding embosses 44 are formed on inner surfaces 46 of the sidewalls 16, the embosses 44 being shaped to fit within the debosses 40. This configuration allows a first balancing object 10' to be received within the enclosed space 38 of a second balancing object 10" and secured thereto by the embosses 44 of the second balancing object 10" sliding along the sidewall outer surfaces 42 of the first balancing object 10' and snapping into engagement with the debosses 40 thereof. At this point, both balancing objects 10', 10" may be carried together simply by holding onto the upper or second balancing object 10". Subsequently, the balancing objects 10', 10" may be separated from one another by either pulling the balancing objects 10', 10" in opposite directions to move the embosses 44 out of the debosses 40, or by squeezing or otherwise moving the sidewalls 16 of the first balancing object 10 towards one another so that the lateral width of the first balancing object 10' at the debosses 40 is less than the lateral width of the second balancing object 10" at the embosses 44 and the objects 10', 10" may be pulled away from one another. In either the joining together or separation of the balancing objects 10', 10", the lateral flexibility of the sidewalls 16 facilitates the ease of movement of the embosses 44 into or out of engagement with the debosses 40. If desired, additional balancing objects 10 may be joined together in the same fashion as the first and second balancing objects 10', 10" by stacking within the enclosed space 38 of the first balancing object 10' and/or over the arcuate roof 14 of the second balancing object

10". It should also be understood that the positions of the embosses 44 and debosses 40 may be reversed as a matter of design choice.

[0027] An illustration of the first and second balancing objects 10', 10" in use is depicted in Fig. 8. A user 200 has a number of options regarding their stance on the arcuate roof 14 of the balancing objects 10', 10" as well as their movements relative to the objects 10', 10". For example, the user 200 may stand relatively motionless with a foot 202 on each of the balancing objects 10', 10" – or with merely one foot on one of objects 10', 10" and the other foot suspended above the horizontal surface 100 – to develop their static balance. The user 200 may alternatively step or shift their weight back and forth between the first and second balancing objects 10', 10" to develop their dynamic balance and proprioception. Because the arcuate roof 14, or more particularly, the frictional overmold 20 onto which the user 200 positions their foot 202, is a non-flat surface, typically the user 200 can place merely a portion of their foot 202 on the roof 14 while the rest of their foot 202 is suspended in mid air (as seen in Fig. 8), thereby challenging the user to maintain balance in a more unsteady state than when standing flat-footed.

[0028] Fig. 9 shows an exemplary layout for multiple balancing objects 10 such that a user may repeatedly step forward and backward on the objects 10 to further customize their workout. By positioning the balancing objects 10 relative to each other in any orientation on the horizontal surface (e.g., forward and back, laterally, diagonally), the user is able to target the desired muscles to be trained and can closely tailor the difficulty of the workout to their needs.

[0029] As such, the balancing objects 10 of the present invention provide an individual with a superior tool for the development of static and dynamic balance, and proprioception. The balancing objects 10 have a shape that allows for various foot positioning on the arcuate roof 14 to more fully train the muscle groups of a user necessary for achieving strong balance. The

shape and configuration of the balancing objects 10 also provide a design that is strong, yet lightweight, and easily portable with multiple objects 10 stackable together.

[0030] Since certain changes may be made in the above invention without departing from the scope hereof, it is intended that all matter contained in the above description or shown in the accompanying drawing be interpreted as illustrative and not in a limiting sense. It is also to be understood that the following claims are to cover certain generic and specific features described herein.